Building and Structural Steel Systems

Insulfrax® S Blanket and Durablanket ® S Blankets form an essential element in the fire protection of structural steel columns and beams, achieving up to 240 minutes of fire resistance. These blankets are non-combustible and have been tested in accordance with BS476:Part 4:1970 (1984).

Insulfrax® & Durablanket S Blanket Details

Insulfrax S Blanket and Durablanket S Blankets are available in a range of densities, thicknesses and roll sizes, as indicated on the product data sheet. The thickness and density chosen depends upon the fire rating required and application, detailed overleaf.
The blanket is easily cut with a sharp knife. A straight edge ensures a neat cut. The blanket cartons may be opened out flat to provide a clean working surface

Installation

One or two layers of blanket are impaled over 3mm diameter welded pins and retained using *speedfix* washers.
The design and pin layout pattern must be in accordance with the tested sections, ie. the pin spacing should be designed to suit the outer layer of blanket. The pins should not be closer than 50 mm to the edge of the blanket on 300 mm centres.

External Protection

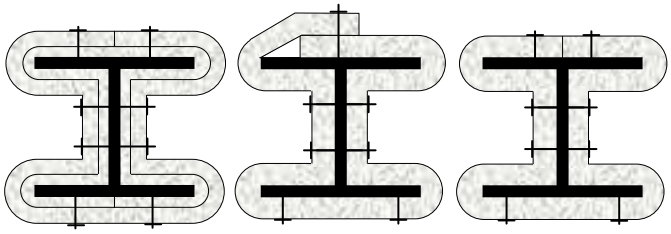
A variety of external finishes can be applied to Insulfrax S Blanket & Durablanket S to give protection against the weather, contamination or mechanical damage. Some finishes, for example aluminium foil, can be applied prior to shipment of the products.

Single and Multi-layer Systems

The installation of the blanket should be done with the following considerations:

- the *speedfix* washers should not over-compress the blanket
- the blanket should not be stretched across corners of steelwork
- butt joints should be under compression
- traverse and longitudinal joints should be overlapped

Single and Multi-layer Systems - Installation Types

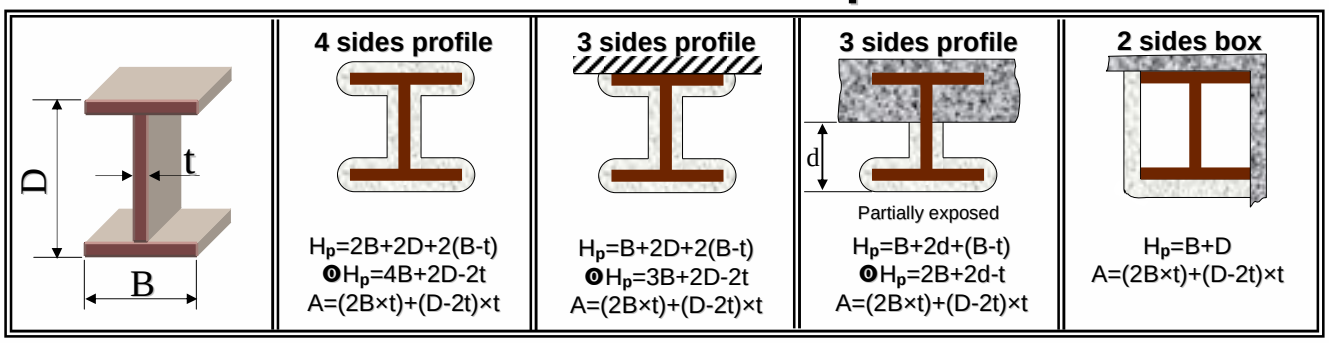


Type 1 **Type 2** **Type 3**

- **Type 1** - multi-layer, butt joint
- **Type 2** - single layer, overlap
- **Type 3** - single layer, butt joint

Building and Structural Steel Systems

Section Factor - Hp/A



The concept of the ***Section Factor*, H_p/A,** for structural steel members serves as a way to illustrate how quickly a particular section type would increase in temperature when exposed to a fire. **Insulfrax® S Blanket & Durablanket S® Blankets** provide an ideal solution to many structural steel fire protection problems.

Section Factor, H_p/A

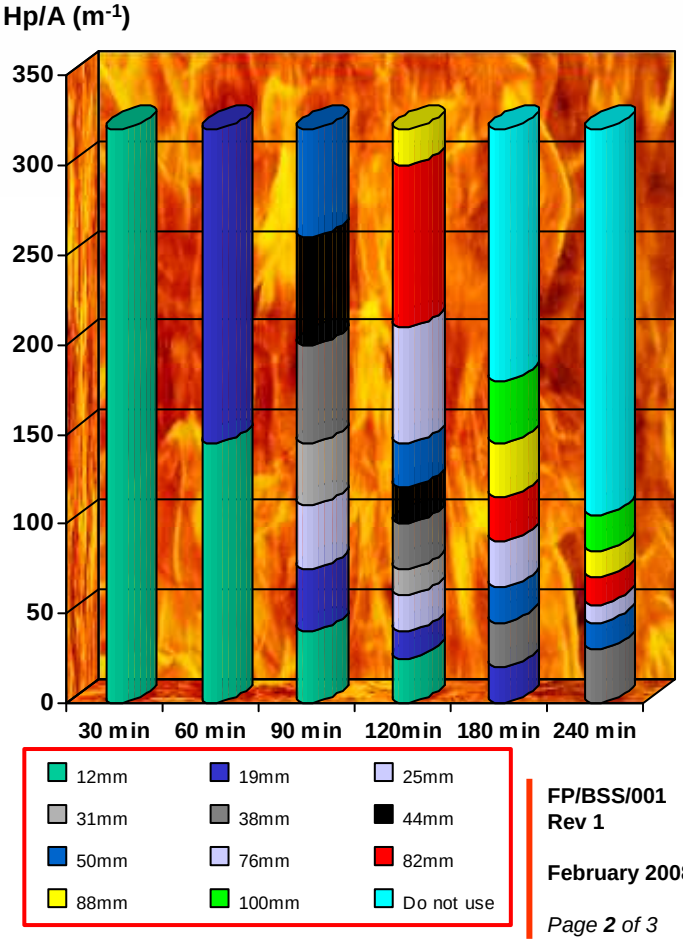
A steel section with a large perimeter (H_p) will receive more heat than one with a smaller perimeter. Also, the greater the cross-sectional area (**A**) of the section, the greater the heat sink. It follows that a small thick section will be slower to increase in temperature than a large thin one. Therefore, the higher the value of H_p/A, the faster the section will heat up in a fire and so require a greater thickness of insulation.

When calculating the H_p/A, the total cross sectional area A is used irrespective of the number of exposed sides of the section, as the total mass of steel will be absorbing heat. However, H_p is the exposed perimeter only and will depend upon the configuration of the fire protection, box or profile wrap, and the position of the steel section relevant to other materials as shown in the examples above.

Insulfrax S Blanket and Durablanket S can be used profile wrap and box style insulation and provides the fire resistance to structural steel members as shown in the table opposite.

The table shows the thickness of blanket needed to achieve the indicated number of minutes fire resistance according to BS476:Part 21:1987.

Thickness of Insulation for Fire Resistance



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Contact Numbers

Website: www.unifrax.com

United Kingdom
Tel: +44 (0)1744 88 7600 Fax: +44 (0)1744 88 9916

France
Tel: +33 (0)4 77 73 98 25 Fax: +33 (0)4 77 73 39 91

Germany
Tel: +49 (0)211 87 746 0 Fax: +49 (0)211 87 746 115

Belgium
Tel: +32 (0)2 761 23 12 Fax: +32 (0)2 761 23 13

Italy
Tel: +39 02 96701808 Fax: +39 02 9625721

Spain
Tel: +34 91 395 22 79 Fax: +34 91 395 21 24

Czech Republic
Tel: +420 417 800 111 Fax: +420 417 539 838